

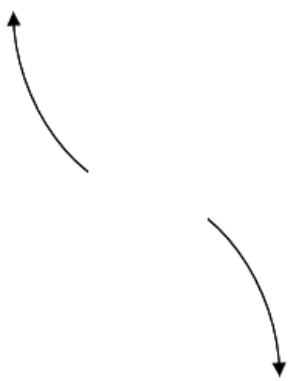
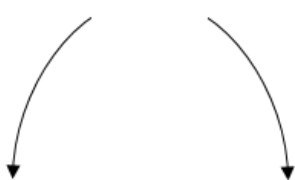
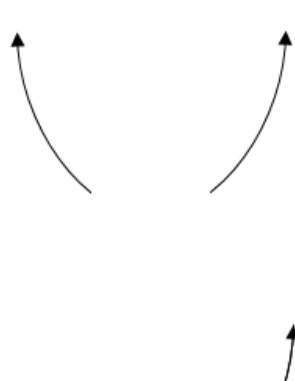
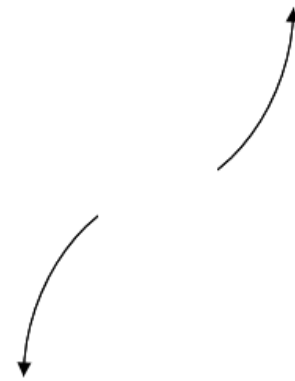
1. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

$$\frac{-5}{2}, \frac{4}{3}, \text{ and } -1$$

- A. $a \in [1, 10], b \in [13, 15], c \in [-15, -4], \text{ and } d \in [10, 26]$
 B. $a \in [1, 10], b \in [-2, 5], c \in [-31, -24], \text{ and } d \in [-22, -12]$
 C. $a \in [1, 10], b \in [-14, -11], c \in [-15, -4], \text{ and } d \in [10, 26]$
 D. $a \in [1, 10], b \in [13, 15], c \in [-15, -4], \text{ and } d \in [-22, -12]$
 E. $a \in [1, 10], b \in [-19, -15], c \in [-3, -2], \text{ and } d \in [10, 26]$

2. Describe the end behavior of the polynomial below.

$$f(x) = 2(x - 3)^5(x + 3)^{10}(x + 7)^4(x - 7)^5$$

- A. 
- B. 
- C. 
- D. 
- E. None of the above.

3. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

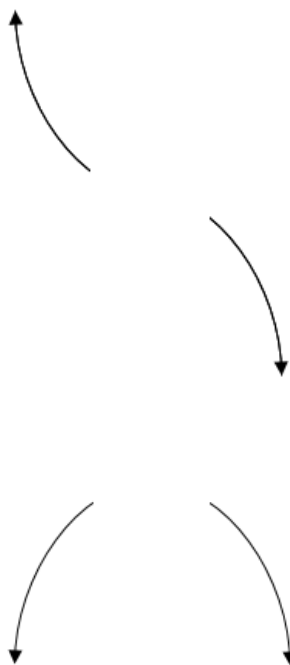
$$-3 - 5i \text{ and } -4$$

- A. $b \in [-11, -8], c \in [57.4, 58.57], \text{ and } d \in [-141, -128]$
 B. $b \in [1, 5], c \in [8.96, 9.07], \text{ and } d \in [16, 25]$
 C. $b \in [9, 15], c \in [57.4, 58.57], \text{ and } d \in [136, 145]$
 D. $b \in [1, 5], c \in [6.8, 8.11], \text{ and } d \in [12, 18]$
 E. None of the above.

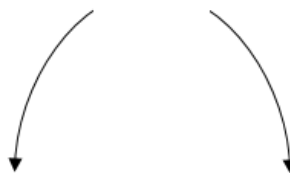
4. Describe the end behavior of the polynomial below.

$$f(x) = -2(x - 8)^4(x + 8)^5(x + 4)^2(x - 4)^2$$

A.



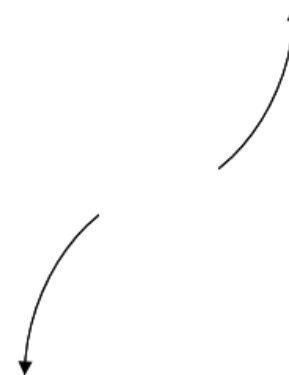
B.



C.

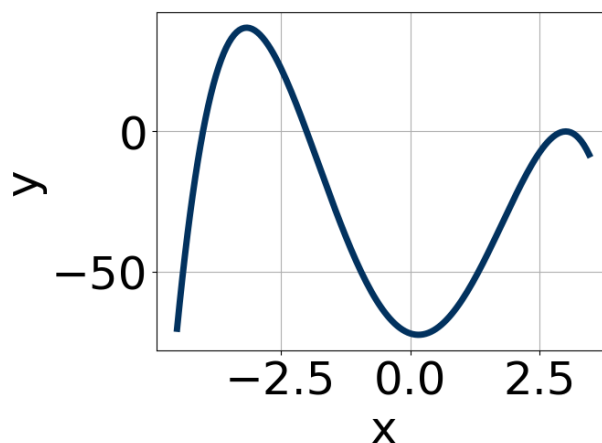


D.



E. None of the above.

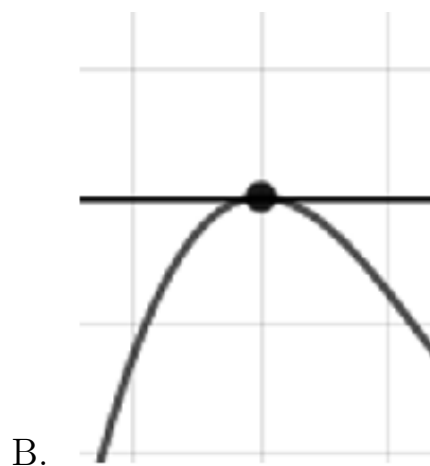
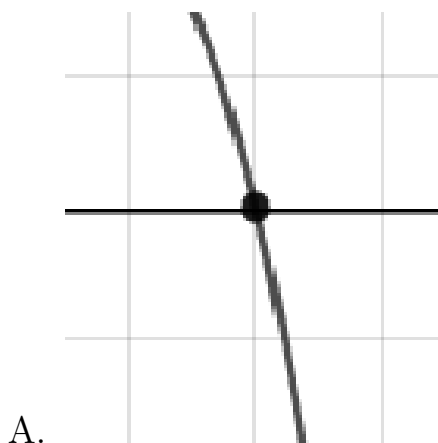
5. Which of the following equations *could* be of the graph presented below?



- A. $-2(x - 3)^6(x + 4)^{10}(x + 2)^5$
- B. $6(x - 3)^{10}(x + 4)^{11}(x + 2)^7$
- C. $19(x - 3)^6(x + 4)^9(x + 2)^{10}$
- D. $-19(x - 3)^9(x + 4)^6(x + 2)^{11}$
- E. $-14(x - 3)^8(x + 4)^{11}(x + 2)^5$

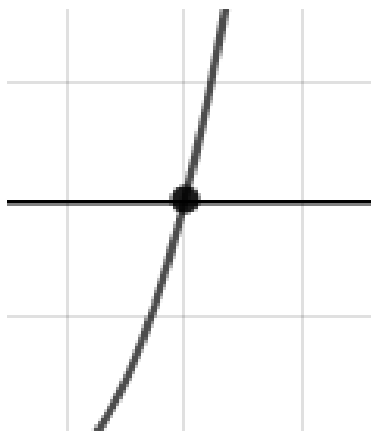
6. Describe the zero behavior of the zero $x = 9$ of the polynomial below.

$$f(x) = 2(x + 5)^4(x - 5)^2(x + 9)^{11}(x - 9)^8$$





C.



D.

E. None of the above.

7. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

$$5 + 3i \text{ and } -2$$

- A. $b \in [-3, 4], c \in [-1, 3], \text{ and } d \in [-8, -3]$
 B. $b \in [5, 14], c \in [7, 19], \text{ and } d \in [-75, -65]$
 C. $b \in [-3, 4], c \in [-7, -2], \text{ and } d \in [-10, -8]$
 D. $b \in [-12, -7], c \in [7, 19], \text{ and } d \in [67, 75]$
 E. None of the above.

8. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

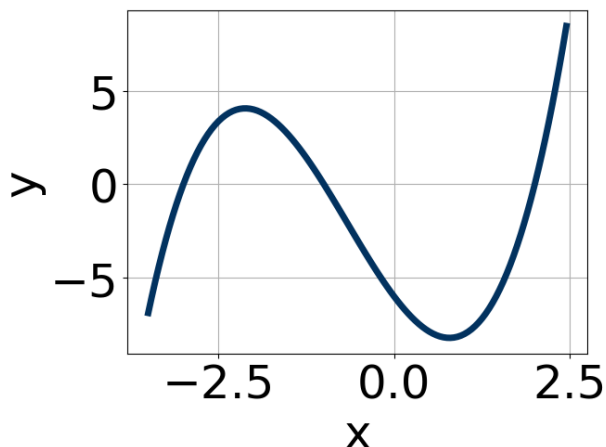
$$-\frac{2}{3}, \frac{7}{3}, \text{ and } 6$$

- A. $a \in [3, 10], b \in [-71, -67], c \in [69, 84], \text{ and } d \in [82, 94]$
 B. $a \in [3, 10], b \in [-71, -67], c \in [69, 84], \text{ and } d \in [-86, -79]$
 C. $a \in [3, 10], b \in [66, 74], c \in [69, 84], \text{ and } d \in [-86, -79]$

D. $a \in [3, 10], b \in [-43, -34], c \in [-106, -100]$, and $d \in [82, 94]$

E. $a \in [3, 10], b \in [-81, -79], c \in [175, 180]$, and $d \in [-86, -79]$

9. Which of the following equations *could* be of the graph presented below?



A. $12(x - 2)^6(x + 3)^5(x + 1)^7$

B. $20(x - 2)^7(x + 3)^5(x + 1)^9$

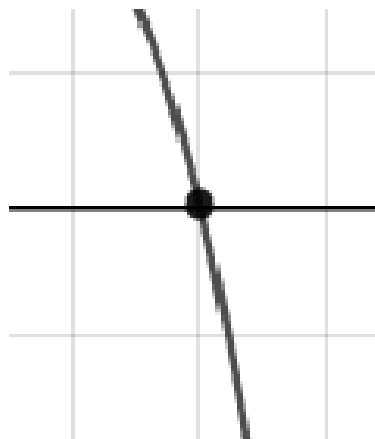
C. $-17(x - 2)^4(x + 3)^7(x + 1)^5$

D. $-14(x - 2)^7(x + 3)^{11}(x + 1)^7$

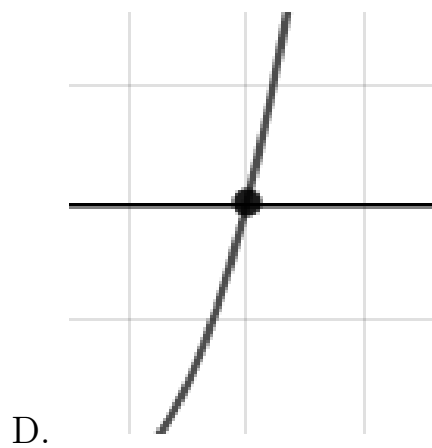
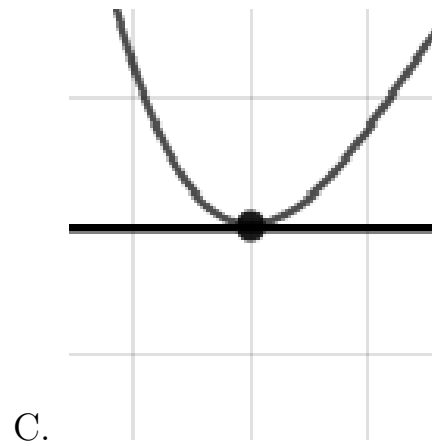
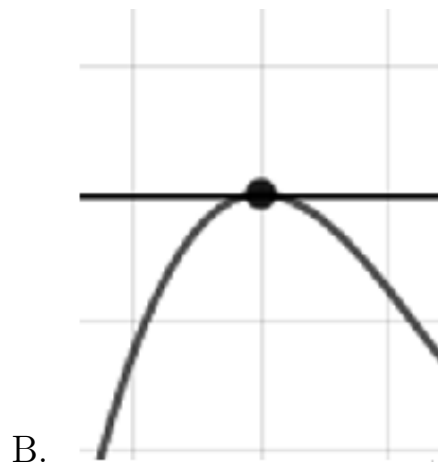
E. $9(x - 2)^4(x + 3)^6(x + 1)^9$

10. Describe the zero behavior of the zero $x = 4$ of the polynomial below.

$$f(x) = 5(x - 4)^9(x + 4)^{10}(x - 7)^9(x + 7)^{10}$$



A.



E. None of the above.